

SEQUENCE LISTING

<110> Steward, Lance E.  
Fernandez-Salas, Ester  
Aoki, Kei Roger

<120> Fret Protease Assays For Botulinum  
Serotype A/E Toxins

<130> P-AR 4803

<160> 96

<170> FastSEQ for Windows Version 4.0

<210> 1

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<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic construct

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1 5

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<212> PRT

<213> Homo sapiens

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Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met  
20 25 30  
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val  
35 40 45  
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met  
50 55 60  
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp  
65 70 75 80  
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys  
85 90 95  
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val  
100 105 110  
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala  
115 120 125

FOR 230-7202460

Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn  
130 135 140  
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu  
145 150 155 160  
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg  
165 170 175  
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile  
180 185 190  
Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly  
195 200 205

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1 5

<210> 4  
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<400> 4  
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20 25 30  
Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val  
35 40 45  
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp  
50 55 60  
Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser  
65 70 75 80  
Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met  
85 90 95  
Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Val  
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Tyr Phe Ser Ser  
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094204-082650

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Arg Asp Gln Lys Leu Ser Glu Leu  
1 5

<210> 7  
<211> 206  
<212> PRT  
<213> Rattus sp.

<400> 7  
Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg  
1 5 10 15  
Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met  
20 25 30  
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val  
35 40 45  
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met  
50 55 60  
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp  
65 70 75 80  
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys  
85 90 95  
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val  
100 105 110  
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala  
115 120 125  
Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn  
130 135 140  
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu

108280-12024660

145                      150                      155                      160  
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg  
                         165                      170                      175  
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile  
                         180                      185                      190  
Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly  
                         195                      200                      205

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Gln Ile Asp Arg Ile Met Glu Lys  
1                      5

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<212> PRT  
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1                      5

FOB280"42024650

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<210> 12  
 <211> 206  
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 <213> Mus musculus

<400> 12  
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 20 25 30  
 Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val  
 35 40 45  
 Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met  
 50 55 60  
 Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp  
 65 70 75 80  
 Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys  
 85 90 95  
 Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val  
 100 105 110  
 Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala  
 115 120 125  
 Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn  
 130 135 140  
 Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu  
 145 150 155 160  
 Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg  
 165 170 175  
 Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile  
 180 185 190  
 Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly  
 195 200 205

<210> 13  
 <211> 212  
 <212> PRT  
 <213> Drosophila sp.

094004-024660

<400> 13

Met	Pro	Ala	Asp	Pro	Ser	Glu	Glu	Val	Ala	Pro	Gln	Val	Pro	Lys	Thr
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Glu	Leu	Glu	Glu	Leu	Gln	Ile	Asn	Ala	Gln	Gly	Val	Ala	Asp	Glu	Ser
			20					25					30		
Leu	Glu	Ser	Thr	Arg	Arg	Met	Leu	Ala	Leu	Cys	Glu	Glu	Ser	Lys	Glu
		35					40					45			
Ala	Gly	Ile	Arg	Thr	Leu	Val	Ala	Leu	Asp	Asp	Gln	Gly	Glu	Gln	Leu
	50					55					60				
Asp	Arg	Ile	Glu	Glu	Gly	Met	Asp	Gln	Ile	Asn	Ala	Asp	Met	Arg	Glu
65					70					75					80
Ala	Glu	Lys	Asn	Leu	Ser	Gly	Met	Glu	Lys	Cys	Cys	Gly	Ile	Cys	Val
			85						90					95	
Leu	Pro	Cys	Asn	Lys	Ser	Gln	Ser	Phe	Lys	Glu	Asp	Asp	Gly	Thr	Trp
			100					105					110		
Lys	Gly	Asn	Asp	Asp	Gly	Lys	Val	Val	Asn	Asn	Gln	Pro	Gln	Arg	Val
	115						120					125			
Met	Asp	Asp	Arg	Asn	Gly	Met	Met	Ala	Gln	Ala	Gly	Tyr	Ile	Gly	Arg
	130					135					140				
Ile	Thr	Asn	Asp	Ala	Arg	Glu	Asp	Glu	Met	Glu	Glu	Asn	Met	Gly	Gln
145					150					155					160
Val	Asn	Thr	Met	Ile	Gly	Asn	Leu	Arg	Asn	Met	Ala	Leu	Asp	Met	Gly
				165					170					175	
Ser	Glu	Leu	Glu	Asn	Gln	Asn	Arg	Gln	Ile	Asp	Arg	Ile	Asn	Arg	Lys
			180					185					190		
Gly	Glu	Ser	Asn	Glu	Ala	Arg	Ile	Ala	Val	Ala	Asn	Gln	Arg	Ala	His
		195					200					205			
Gln	Leu	Leu	Lys												
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<210> 14

<211> 203

<212> PRT

<213> Carassius auratus

<400> 14

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Arg	Ala	Asp	Gln	Leu	Gly	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg	Arg	Met
			20					25					30		
Leu	Gln	Leu	Val	Glu	Glu	Ser	Lys	Asp	Ala	Gly	Ile	Arg	Thr	Leu	Val
		35					40					45			
Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Glu	Arg	Ile	Glu	Glu	Gly	Met
	50					55					60				
Asp	Gln	Ile	Asn	Lys	Asp	Met	Lys	Leu	Ala	Glu	Lys	Asn	Leu	Thr	Asp
65				70						75					80
Leu	Gly	Asn	Leu	Cys	Gly	Leu	Cys	Pro	Cys	Pro	Cys	Asn	Lys	Leu	Lys
			85					90						95	
Gly	Gly	Gly	Gln	Ser	Trp	Gly	Asn	Asn	Gln	Asp	Gly	Val	Val	Ser	Ser
			100					105					110		
Gln	Pro	Ala	Arg	Val	Val	Asp	Glu	Arg	Glu	Gln	Met	Ala	Ile	Ser	Gly
		115						120				125			

09942024-082801

Gly	Phe	Ile	Arg	Arg	Val	Thr	Asn	Asp	Ala	Arg	Glu	Asn	Glu	Met	Asp
130						135					140				
Glu	Asn	Leu	Glu	Gln	Val	Gly	Ser	Ile	Ile	Gly	Asn	Leu	Arg	His	Met
145					150					155					160
Ala	Leu	Asp	Met	Gly	Asn	Glu	Ile	Asp	Thr	Gln	Asn	Arg	Gln	Ile	Asp
				165					170					175	
Arg	Ile	Met	Asp	Met	Ala	Asp	Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala
			180					185					190		
Asn	Gln	Arg	Ala	Thr	Lys	Met	Leu	Gly	Ser	Gly					
	195						200								

<210> 15

<211> 212

<212> PRT

<213> Strongylocentrotus purpuratus

<400> 15

Met	Glu	Asp	Gln	Asn	Asp	Met	Asn	Met	Arg	Ser	Glu	Leu	Glu	Glu	Ile
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Gln	Met	Gln	Ser	Asn	Met	Gln	Thr	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg
			20					25					30		
Arg	Met	Leu	Gln	Met	Ala	Glu	Glu	Ser	Gln	Asp	Met	Gly	Ile	Lys	Thr
		35					40					45			
Leu	Val	Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Asp	Arg	Ile	Glu	Glu
		50				55					60				
Gly	Met	Asp	Gln	Ile	Asn	Thr	Asp	Met	Arg	Glu	Ala	Glu	Lys	Asn	Leu
65					70				75						80
Thr	Gly	Leu	Glu	Lys	Cys	Cys	Gly	Ile	Cys	Val	Cys	Pro	Trp	Lys	Lys
				85					90					95	
Leu	Gly	Asn	Phe	Glu	Lys	Gly	Asp	Asp	Tyr	Lys	Lys	Thr	Trp	Lys	Gly
			100					105					110		
Asn	Asp	Asp	Gly	Lys	Val	Asn	Ser	His	Gln	Pro	Met	Arg	Met	Glu	Asp
			115					120				125			
Asp	Arg	Asp	Gly	Cys	Gly	Gly	Asn	Ala	Ser	Met	Ile	Thr	Arg	Ile	Thr
			130				135					140			
Asn	Asp	Ala	Arg	Glu	Asp	Glu	Met	Asp	Glu	Asn	Leu	Thr	Gln	Val	Ser
145					150					155					160
Ser	Ile	Val	Gly	Asn	Leu	Arg	His	Met	Ala	Ile	Asp	Met	Gln	Ser	Glu
				165					170					175	
Ile	Gly	Ala	Gln	Asn	Ser	Gln	Val	Gly	Arg	Ile	Thr	Ser	Lys	Ala	Glu
			180					185					190		
Ser	Asn	Glu	Gly	Arg	Ile	Asn	Ser	Ala	Asp	Lys	Arg	Ala	Lys	Asn	Ile
		195					200					205			
Leu	Arg	Asn	Lys												
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<210> 16

<211> 249

<212> PRT

<213> Gallus gallus

109942024-082801

<400> 16

Met	Ala	Glu	Asp	Ala	Asp	Met	Arg	Asn	Glu	Leu	Glu	Glu	Met	Gln	Arg
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Arg	Ala	Asp	Gln	Leu	Ala	Asp	Glu	Ser	Leu	Glu	Ser	Thr	Arg	Arg	Met
			20					25					30		
Leu	Gln	Leu	Val	Glu	Glu	Ser	Lys	Asp	Ala	Gly	Ile	Arg	Thr	Leu	Val
		35					40					45			
Met	Leu	Asp	Glu	Gln	Gly	Glu	Gln	Leu	Asp	Arg	Val	Glu	Glu	Gly	Met
	50					55					60				
Asn	His	Ile	Asn	Gln	Asp	Met	Lys	Glu	Ala	Glu	Lys	Asn	Leu	Lys	Asp
65					70					75					80
Leu	Gly	Lys	Cys	Cys	Gly	Leu	Phe	Ile	Cys	Pro	Cys	Asn	Lys	Leu	Lys
				85					90					95	
Ser	Ser	Asp	Ala	Tyr	Lys	Lys	Ala	Trp	Gly	Asn	Asn	Gln	Asp	Gly	Val
			100					105					110		
Val	Ala	Ser	Gln	Pro	Ala	Arg	Val	Val	Asp	Glu	Arg	Glu	Gln	Met	Ala
		115					120					125			
Ile	Ser	Gly	Gly	Phe	Ile	Arg	Arg	Val	Thr	Asn	Asp	Ala	Arg	Glu	Asn
	130					135					140				
Glu	Met	Asp	Glu	Asn	Leu	Glu	Gln	Val	Ser	Gly	Ile	Ile	Gly	Asn	Leu
145					150					155					160
Arg	His	Met	Ala	Leu	Asp	Met	Gly	Asn	Glu	Ile	Asp	Thr	Gln	Asn	Arg
				165					170					175	
Gln	Ile	Asp	Arg	Ile	Met	Glu	Lys	Leu	Ile	Pro	Ile	Lys	Pro	Gly	Leu
			180					185					190		
Met	Lys	Pro	Thr	Ser	Val	Gln	Gln	Arg	Cys	Ser	Ala	Val	Val	Lys	Cys
		195					200					205			
Ser	Lys	Val	His	Phe	Leu	Leu	Met	Leu	Ser	Gln	Arg	Ala	Val	Pro	Ser
	210					215					220				
Cys	Phe	Tyr	His	Gly	Ile	Tyr	Leu	Leu	Gly	Leu	His	Thr	Cys	Thr	Tyr
225					230					235					240
Gln	Pro	His	Cys	Lys	Cys	Cys	Pro	Val							
				245											

<210> 17

<211> 116

<212> PRT

<213> Mus musculus

<400> 17

Met	Ser	Ala	Thr	Ala	Ala	Thr	Val	Pro	Pro	Ala	Ala	Pro	Ala	Gly	Glu
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Gly	Gly	Pro	Pro	Ala	Pro	Pro	Pro	Asn	Leu	Thr	Ser	Asn	Arg	Arg	Leu
			20					25					30		
Gln	Gln	Thr	Gln	Ala	Cln	Val	Asp	Gln	Val	Val	Asp	Ile	Met	Arg	Val
		35					40					45			
Asn	Val	Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp
	50					55					60				
Asp	Arg	Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser
65					70					75					80
Ala	Ala	Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp	Lys	Asn	Leu	Lys	Met	Met
				85					90					95	

09942024-082801



Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val  
 100 105 110  
 Tyr Phe Ser Thr  
 115

<210> 18  
 <211> 116  
 <212> PRT  
 <213> Bos taurus

<400> 18  
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 Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu  
 20 25 30  
 Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val  
 35 40 45  
 Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp  
 50 55 60  
 Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser  
 65 70 75 80  
 Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met  
 85 90 95  
 Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val  
 100 105 110  
 Tyr Phe Ser Ser  
 115

<210> 19  
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 <212> PRT  
 <213> Xenopus laevis

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 Met Ser Ala Pro Ala Ala Gly Pro Pro Ala Ala Ala Pro Gly Asp Gly  
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 Ala Pro Gln Gly Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu Gln Gln  
 20 25 30  
 Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val Asn Val  
 35 40 45  
 Asp Lys Val Leu Glu Arg Asp Thr Lys Leu Ser Glu Leu Asp Asp Arg  
 50 55 60  
 Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala  
 65 70 75 80  
 Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Met Lys Met Met Ile Ile  
 85 90 95  
 Met Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val Tyr Phe  
 100 105 110  
 Ser Thr

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<210> 20  
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 <212> PRT  
 <213> Strongylocentrotus purpuratus

<400> 20  
 Met Ala Ala Pro Pro Pro Gln Pro Ala Pro Ser Asn Lys Arg Leu  
 1 5 10 15  
 Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val  
 20 25 30  
 Asn Val Asp Lys Val Leu Glu Arg Asp Gln Ala Leu Ser Val Leu Asp  
 35 40 45  
 Asp Arg Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn  
 50 55 60  
 Ala Gly Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys Met Met  
 65 70 75 80  
 Ile Ile Leu Ala Ile Ile Ile Val Ile Leu Ile Ile Ile Ile Val  
 85 90 95  
 Ala Ile Val Gln Ser Gln Lys Lys  
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<210> 21  
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 <212> PRT  
 <213> Homo sapiens

<400> 21  
 Met Lys Asp Arg Thr Gln Glu Leu Arg Thr Ala Lys Asp Ser Asp Asp  
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 Asp Asp Asp Val Ala Val Thr Val Asp Arg Asp Arg Phe Met Asp Glu  
 20 25 30  
 Phe Phe Glu Gln Val Glu Glu Ile Arg Gly Phe Ile Asp Lys Ile Ala  
 35 40 45  
 Glu Asn Val Glu Glu Val Lys Arg Lys His Ser Ala Ile Leu Ala Ser  
 50 55 60  
 Pro Asn Pro Asp Glu Lys Thr Lys Glu Glu Leu Glu Glu Leu Met Ser  
 65 70 75 80  
 Asp Ile Lys Lys Thr Ala Asn Lys Val Arg Ser Lys Leu Lys Ser Ile  
 85 90 95  
 Glu Gln Ser Ile Glu Gln Glu Glu Gly Leu Asn Arg Ser Ser Ala Asp  
 100 105 110  
 Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val  
 115 120 125  
 Glu Val Met Ser Glu Tyr Asn Ala Thr Gln Ser Asp Tyr Arg Glu Arg  
 130 135 140  
 Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Arg Thr Thr  
 145 150 155 160  
 Thr Ser Glu Glu Leu Glu Asp Met Leu Glu Ser Gly Asn Pro Ala Ile  
 165 170 175  
 Phe Ala Ser Gly Ile Ile Met Asp Ser Ser Ile Ser Lys Gln Ala Leu  
 180 185 190

00042004-082301

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<210> 22
<211> 288
<212> PRT
<213> Homo sapiens
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<400> 22															
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Phe	Glu	Gln 35	Val	Glu	Glu	Ile 40	Arg	Gly	Cys	Ile	Glu	Lys 45	Leu	Ser	Glu
Asp	Val 50	Glu	Gln	Val	Lys 55	Lys	Gln	His	Ser	Ala	Ile 60	Leu	Ala	Ala	Pro
Asn 65	Pro	Asp	Glu	Lys 70	Thr	Lys	Gln	Glu	Leu	Glu 75	Asp	Leu	Thr	Ala	Asp
Ile	Lys	Lys	Thr 85	Ala	Asn	Lys	Val	Arg	Ser 90	Lys	Leu	Lys	Ala 95	Ile	Glu
Gln	Ser	Ile 100	Glu	Gln	Glu	Glu	Gly	Leu	Asn 105	Arg	Ser	Ser	Ala 110	Asp	Leu
Arg	Ile	Arg 115	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys 125	Phe	Val	Glu
Val	Met 130	Thr	Glu	Tyr	Asn 135	Ala	Thr	Gln	Ser	Lys	Tyr	Arg 140	Asp	Arg	Cys
Lys 145	Asp	Arg	Ile	Gln 150	Arg	Gln	Leu	Glu	Ile	Thr 155	Gly	Arg	Thr	Thr	Thr
Asn	Glu	Glu	Leu 165	Glu	Asp	Met	Leu	Glu	Ser	Gly 170	Lys	Leu	Ala 175	Ile	Phe
Thr	Asp	Asp 180	Ile	Lys	Met	Asp	Ser	Gln	Met 185	Thr	Lys	Gln	Ala 190	Leu	Asn
Glu	Ile 195	Glu	Thr	Arg	His	Asn	Glu	Ile	Lys 200	Leu	Glu	Thr	Ser	Ile	
Arg	Glu 210	Leu	His	Asp	Met	Phe 215	Val	Asp	Met	Ala	Met 220	Leu	Val	Glu	Ser
Gln 225	Gly	Glu	Met	Ile 230	Asp	Arg	Ile	Glu	Tyr	Asn 235	Val	Glu	His	Ser	Val
Asp	Tyr	Val	Glu 245	Arg	Ala	Val	Ser	Asp	Thr 250	Lys	Lys	Ala	Val	Lys	Tyr
Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Ile	Ile	Cys	Cys	Val

		260						265					270						
Val	Leu	Gly	Val	Val	Leu	Ala	Ser	Ser	Ile	Gly	Gly	Thr	Leu	Gly	Leu				
		275						280					285						

<210> 23  
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 <212> PRT  
 <213> Mus musculus

<400> 23

Met	Lys	Asp	Arg	Thr	Gln	Glu	Leu	Arg	Thr	Ala	Lys	Asp	Ser	Asp	Asp				
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Asp	Asp	Asp	Val	Thr	Val	Thr	Val	Asp	Arg	Asp	Arg	Phe	Met	Asp	Glu				
			20					25					30						
Phe	Phe	Glu	Gln	Val	Glu	Glu	Ile	Arg	Gly	Phe	Ile	Asp	Lys	Ile	Ala				
		35					40					45							
Glu	Asn	Val	Glu	Glu	Val	Lys	Arg	Lys	His	Ser	Ala	Ile	Leu	Ala	Ser				
	50					55					60								
Pro	Asn	Pro	Asp	Glu	Lys	Thr	Lys	Glu	Glu	Leu	Glu	Glu	Leu	Met	Ser				
65					70					75					80				
Asp	Ile	Lys	Lys	Thr	Ala	Asn	Lys	Val	Arg	Ser	Lys	Leu	Lys	Ser	Ile				
				85					90					95					
Glu	Gln	Ser	Ile	Glu	Gln	Glu	Glu	Gly	Leu	Asn	Arg	Ser	Ser	Ala	Asp				
			100					105						110					
Leu	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys	Phe	Val				
	115						120						125						
Glu	Val	Met	Ser	Glu	Tyr	Asn	Ala	Thr	Gln	Ser	Asp	Tyr	Arg	Glu	Arg				
	130					135					140								
Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly	Arg	Thr	Thr				
145					150					155					160				
Thr	Ser	Glu	Glu	Leu	Glu	Asp	Met	Leu	Glu	Ser	Gly	Asn	Pro	Ala	Ile				
				165					170					175					
Phe	Ala	Ser	Gly	Ile	Ile	Met	Asp	Ser	Ser	Ile	Ser	Lys	Gln	Ala	Leu				
			180					185					190						
Ser	Glu	Ile	Glu	Thr	Arg	His	Ser	Glu	Ile	Ile	Lys	Leu	Glu	Thr	Ser				
	195						200					205							
Ile	Arg	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met	Leu	Val	Glu				
	210					215					220								
Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	His	Ala				
225					230					235					240				
Val	Asp	Tyr	Val	Glu	Arg	Ala	Val	Ser	Asp	Thr	Lys	Lys	Ala	Val	Lys				
				245					250					255					
Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Ile	Ile	Cys	Cys				
			260				265						270						
Val	Ile	Leu	Gly	Ile	Ile	Ile	Ala	Ser	Thr	Ile	Gly	Gly	Ile	Phe	Gly				
		275					280						285						

<210> 24  
 <211> 291  
 <212> PRT  
 <213> Drosophila sp.

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<400> 24

Met	Thr	Lys	Asp	Arg	Leu	Ala	Ala	Leu	His	Ala	Ala	Gln	Ser	Asp	Asp
1				5					10					15	
Glu	Glu	Glu	Thr	Glu	Val	Ala	Val	Asn	Val	Asp	Gly	His	Asp	Ser	Tyr
			20					25					30		
Met	Asp	Asp	Phe	Phe	Ala	Gln	Val	Glu	Glu	Ile	Arg	Gly	Met	Ile	Asp
		35					40					45			
Lys	Val	Gln	Asp	Asn	Val	Glu	Val	Lys	Lys	Lys	His	Ser	Ala	Ile	
	50					55				60					
Leu	Ser	Ala	Pro	Gln	Thr	Asp	Glu	Lys	Thr	Lys	Gln	Glu	Leu	Glu	Asp
65					70					75					80
Leu	Met	Ala	Asp	Ile	Lys	Lys	Asn	Ala	Asn	Arg	Val	Arg	Gly	Lys	Leu
				85					90					95	
Lys	Gly	Ile	Glu	Gln	Asn	Ile	Glu	Gln	Glu	Glu	Gln	Gln	Asn	Lys	Ser
			100					105						110	
Ser	Ala	Asp	Leu	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg
		115					120					125			
Lys	Phe	Val	Glu	Val	Met	Thr	Glu	Tyr	Asn	Arg	Thr	Gln	Thr	Asp	Tyr
	130					135					140				
Arg	Glu	Arg	Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly
145					150					155					160
Arg	Pro	Thr	Asn	Asp	Asp	Glu	Leu	Glu	Lys	Met	Leu	Glu	Glu	Gly	Asn
				165					170					175	
Ser	Ser	Val	Phe	Thr	Gln	Gly	Ile	Ile	Met	Glu	Thr	Gln	Gln	Ala	Lys
			180					185					190		
Gln	Thr	Leu	Ala	Asp	Ile	Glu	Ala	Arg	His	Gln	Asp	Ile	Met	Lys	Leu
		195					200					205			
Glu	Thr	Ser	Ile	Lys	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met
	210					215					220				
Leu	Val	Glu	Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	His	Val
225					230					235					240
Glu	His	Ala	Met	Asp	Tyr	Val	Gln	Thr	Ala	Thr	Gln	Asp	Thr	Lys	Lys
				245					250					255	
Ala	Leu	Lys	Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Ile	Met	Ile	Leu
			260					265					270		
Ile	Cys	Leu	Thr	Val	Leu	Gly	Ile	Leu	Ala	Ala	Ser	Tyr	Val	Ser	Ser
		275					280						285		
Tyr	Phe	Met													
		290													

<210> 25

<211> 291

<212> PRT

<213> Caenorhabditis elegans

<400> 25

Met	Thr	Lys	Asp	Arg	Leu	Ser	Ala	Leu	Lys	Ala	Ala	Gln	Ser	Glu	Asp
1				5					10					15	
Glu	Gln	Asp	Asp	Asp	Met	His	Met	Asp	Thr	Gly	Asn	Ala	Gln	Tyr	Met
			20					25					30		
Glu	Glu	Phe	Phe	Glu	Gln	Val	Glu	Glu	Ile	Arg	Gly	Ser	Val	Asp	Ile

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<210> 26
<211> 288
<212> PRT
<213> Strongylocentrotus purpuratus
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<400> 26															
Met	Arg	Asp	Arg	Leu	Gly	Ser	Leu	Lys	Arg	Asn	Glu	Glu	Asp	Asp	Val
1				5					10					15	
Gly	Pro	Glu	Val	Ala	Val	Asn	Val	Glu	Ser	Glu	Lys	Phe	Met	Glu	Glu
			20					25					30		
Phe	Phe	Glu	Gln	Val	Glu	Glu	Val	Arg	Asn	Asn	Ile	Asp	Lys	Ile	Ser
		35					40					45			
Lys	Asn	Val	Asp	Glu	Val	Lys	Lys	Lys	His	Ser	Asp	Ile	Leu	Ser	Ala
	50					55					60				
Pro	Gln	Ala	Asp	Glu	Lys	Val	Lys	Asp	Glu	Leu	Glu	Glu	Leu	Met	Ser
65					70					75					80
Asp	Ile	Lys	Lys	Thr	Ala	Asn	Lys	Val	Arg	Ala	Lys	Leu	Lys	Met	Met
				85					90					95	

Glu	Gln	Ser	Ile	Glu	Gln	Glu	Glu	Ser	Ala	Lys	Met	Asn	Ser	Ala	Asp
			100					105					110		
Val	Arg	Ile	Arg	Lys	Thr	Gln	His	Ser	Thr	Leu	Ser	Arg	Lys	Phe	Val
			115				120					125			
Glu	Val	Met	Thr	Asp	Tyr	Asn	Ser	Thr	Gln	Thr	Asp	Tyr	Arg	Glu	Arg
		130				135					140				
Cys	Lys	Gly	Arg	Ile	Gln	Arg	Gln	Leu	Glu	Ile	Thr	Gly	Lys	Ser	Thr
145				150					155					160	
Thr	Asp	Ala	Glu	Leu	Glu	Asp	Met	Leu	Glu	Ser	Gly	Asn	Pro	Ala	Ile
			165					170					175		
Phe	Thr	Ser	Gly	Ile	Ile	Met	Asp	Thr	Gln	Gln	Ala	Lys	Gln	Thr	Leu
			180				185					190			
Arg	Asp	Ile	Glu	Ala	Arg	His	Asn	Asp	Ile	Ile	Lys	Leu	Glu	Ser	Ser
		195					200				205				
Ile	Arg	Glu	Leu	His	Asp	Met	Phe	Met	Asp	Met	Ala	Met	Leu	Val	Glu
		210			215				220						
Ser	Gln	Gly	Glu	Met	Ile	Asp	Arg	Ile	Glu	Tyr	Asn	Val	Glu	Gln	Ser
225				230					235					240	
Val	Asp	Tyr	Val	Glu	Thr	Ala	Lys	Met	Asp	Thr	Lys	Lys	Ala	Val	Lys
			245					250					255		
Tyr	Gln	Ser	Lys	Ala	Arg	Arg	Lys	Lys	Phe	Tyr	Ile	Ala	Ile	Cys	Cys
		260					265				270				
Gly	Val	Ala	Leu	Gly	Ile	Leu	Val	Leu	Val	Leu	Ile	Ile	Val	Leu	Ala
		275				280					285				

<210> 27  
 <211> 13  
 <212> PRT  
 <213> Homo sapiens

<400> 27  
 Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met  
 1 5 10

<210> 28  
 <211> 15  
 <212> PRT  
 <213> Homo sapiens

<400> 28  
 Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys  
 1 5 10 15

<210> 29  
 <211> 16  
 <212> PRT  
 <213> Homo sapiens

<400> 29  
 Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met

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1 5 10 15

<210> 30  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 30  
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met  
1 5 10 15  
Leu

<210> 31  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 31  
Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys  
1 5 10 15  
Met

<210> 32  
<211> 18  
<212> PRT  
<213> Homo sapiens

<400> 32  
Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys  
1 5 10 15  
Met Leu

<210> 33  
<211> 33  
<212> PRT  
<213> Mus musculus

<400> 33  
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys  
1 5 10 15  
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser  
20 25 30  
Gly

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<210> 34  
<211> 32  
<212> PRT  
<213> Homo sapiens

<400> 34  
Gln Asn Pro Gln Ile Lys Arg Ile Thr Asp Lys Ala Asp Thr Asn Arg  
1 5 10 15  
Asp Arg Ile Asp Ile Ala Asn Ala Arg Ala Lys Lys Leu Ile Asp Ser  
20 25 30

<210> 35  
<211> 32  
<212> PRT  
<213> Mus musculus

<400> 35  
Gln Asn Gln Gln Ile Gln Lys Ile Thr Glu Lys Ala Asp Thr Asn Lys  
1 5 10 15  
Asn Arg Ile Asp Ile Ala Asn Thr Arg Ala Lys Lys Leu Ile Asp Ser  
20 25 30

<210> 36  
<211> 34  
<212> PRT  
<213> Gallus gallus

<400> 36  
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Leu Ile Pro Ile Lys  
1 5 10 15  
Pro Gly Leu Met Lys Pro Thr Ser Val Gln Gln Arg Cys Ser Ala Val  
20 25 30  
Val Lys

<210> 37  
<211> 33  
<212> PRT  
<213> Carassius auratus

<400> 37  
Gln Asn Arg Gln Ile Asp Arg Ile Met Asp Met Ala Asp Ser Asn Lys  
1 5 10 15  
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser  
20 25 30  
Gly

<210> 38

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<211> 33  
<212> PRT  
<213> Carassius auratus

<400> 38  
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys  
1 5 10 15  
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser  
20 25 30  
Gly

<210> 39  
<211> 30  
<212> PRT  
<213> Torpedo sp.

<400> 39  
Gln Asn Ala Gln Val Asp Arg Ile Val Val Lys Gly Asp Met Asn Lys  
1 5 10 15  
Ala Arg Ile Asp Glu Ala Asn Lys His Ala Thr Lys Met Leu  
20 25 30

<210> 40  
<211> 33  
<212> PRT  
<213> Strongylocentrotus purpuratus

<400> 40  
Gln Asn Ser Gln Val Gly Arg Ile Thr Ser Lys Ala Glu Ser Asn Glu  
1 5 10 15  
Gly Arg Ile Asn Ser Ala Asp Lys Arg Ala Lys Asn Ile Leu Arg Asn  
20 25 30  
Lys

<210> 41  
<211> 31  
<212> PRT  
<213> Caenorhabditis elegans

<400> 41  
Gln Asn Arg Gln Leu Asp Arg Ile His Asp Lys Gln Ser Asn Glu Val  
1 5 10 15  
Arg Val Glu Ser Ala Asn Lys Arg Ala Lys Asn Leu Ile Thr Lys  
20 25 30

<210> 42  
<211> 31

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<212> PRT

<213> Drosophila sp.

<400> 42

Gln	Asn	Arg	Gln	Ile	Asp	Arg	Ile	Asn	Arg	Lys	Gly	Glu	Ser	Asn	Glu
1				5				10						15	
Ala	Arg	Ile	Ala	Val	Ala	Asn	Gln	Arg	Ala	His	Gln	Leu	Leu	Lys	
			20				25						30		

<210> 43

<211> 32

<212> PRT

<213> Hirudinida sp.

<400> 43

Gln	Asn	Arg	Gln	Val	Asp	Arg	Ile	Asn	Asn	Lys	Met	Thr	Ser	Asn	Gln
1				5				10						15	
Leu	Arg	Ile	Ser	Asp	Ala	Asn	Lys	Arg	Ala	Ser	Lys	Leu	Leu	Lys	Glu
			20				25						30		

<210> 44

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 44

Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Ala
1				5				10						15	
Leu															

<210> 45

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<221> MOD\_RES

<222> 16

<223> Xaa=Nle

<400> 45

Ser	Asn	Lys	Thr	Arg	Ile	Asp	Glu	Ala	Asn	Gln	Arg	Ala	Thr	Lys	Xaa
1				5				10						15	
Leu															

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<210> 46  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic peptide

<400> 46  
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Ala Met  
1 5 10 15  
Leu

<210> 47  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic peptide

<400> 47  
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Ser Lys Met  
1 5 10 15  
Leu

<210> 48  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic peptide

<221> MOD\_RES  
<222> 14  
<223> Xaa=Abu

<400> 48  
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Xaa Lys Met  
1 5 10 15  
Leu

<210> 49

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<211> 17
<212> PRT
<213> Artificial Sequence
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<220>  
<223> synthetic peptide

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<221> MOD_RES
<222> 13
<223> Xaa=Abu
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<400> 49
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Xaa Thr Lys Met
 1                      5                      10                      15
Leu
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<210> 50
<211> 17
<212> PRT
<213> Artificial Sequence
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<220>  
<223> synthetic peptide

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<210> 51
<211> 16
<212> PRT
<213> Artificial Sequence
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<220>  
<223> synthetic peptide

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<221> MOD_RES
<222> 11
<223> Xaa=Abu
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>4000> 51
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Xaa Ala Thr Lys Met Leu
  1             5             10             15

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<210> 52
<211> 17
<212> PRT
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<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 52

Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Asn Arg Ala Thr Lys Met  
1 5 10 15  
Leu

<210> 53

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 53

Ser Asn Lys Thr Arg Ile Asp Glu Ala Ala Gln Arg Ala Thr Lys Met  
1 5 10 15  
Leu

<210> 54

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<221> MOD\_RES

<222> 9

<223> Xaa=Abu

<400> 54

Ser Asn Lys Thr Arg Ile Asp Glu Xaa Asn Gln Arg Ala Thr Lys Met  
1 5 10 15  
Leu

<210> 55

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

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<400> 55

Ser Asn Lys Thr Arg Ile Asp Gln Ala Asn Gln Arg Ala Thr Lys Met  
1 5 10 15  
Leu

<210> 56

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic peptide

<400> 56

Ser Asn Lys Thr Arg Ile Asn Glu Ala Asn Gln Arg Ala Thr Lys Met  
1 5 10 15  
Leu

<210> 57

<211> 40

<212> PRT

<213> Homo sapiens

<400> 57

Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg  
1 5 10 15  
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala  
20 25 30  
Lys Leu Lys Arg Lys Tyr Trp Trp  
35 40

<210> 58

<211> 40

<212> PRT

<213> Bos taurus

<400> 58

Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg  
1 5 10 15  
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala  
20 25 30  
Lys Leu Lys Arg Lys Tyr Trp Trp  
35 40

<210> 59

<211> 40

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<212> PRT

<213> Rattus sp.

<400> 59

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5					10					15	
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Val	Phe	Glu	Ser	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 60

<211> 40

<212> PRT

<213> Rattus sp.

<400> 60

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5					10					15	
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 61

<211> 40

<212> PRT

<213> Rattus sp.

<400> 61

Asp	Lys	Val	Leu	Glu	Arg	Asp	Gln	Lys	Leu	Ser	Glu	Leu	Asp	Asp	Arg
1				5					10					15	
Ala	Asp	Ala	Leu	Gln	Ala	Gly	Ala	Ser	Gln	Phe	Glu	Thr	Ser	Ala	Ala
			20					25					30		
Lys	Leu	Lys	Arg	Lys	Tyr	Trp	Trp								
		35					40								

<210> 62

<211> 40

<212> PRT

<213> Rattus sp.

<400> 62

Asp	Leu	Val	Ala	Gln	Arg	Gly	Glu	Arg	Leu	Glu	Leu	Leu	Ile	Asp	Lys
1				5					10					15	
Thr	Glu	Asn	Leu	Val	Asp	Ser	Ser	Val	Thr	Phe	Lys	Thr	Thr	Ser	Arg
			20					25					30		
Asn	Leu	Ala	Arg	Ala	Met	Cys	Met								
		35					40								

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<210> 63  
<211> 32  
<212> PRT  
<213> Gallus gallus

<400> 63  
Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu  
1 5 10 15  
Gln Ala Gly Ala Ser Val Phe Glu Ser Ser Ala Ala Lys Leu Lys Arg  
20 25 30

<210> 64  
<211> 32  
<212> PRT  
<213> Gallus gallus

<400> 64  
Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu  
1 5 10 15  
Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala Lys Leu Lys Arg  
20 25 30

<210> 65  
<211> 40  
<212> PRT  
<213> Torpedo sp.

<400> 65  
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg  
1 5 10 15  
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala  
20 25 30  
Lys Leu Lys Arg Lys Tyr Trp Trp  
35 40

<210> 66  
<211> 40  
<212> PRT  
<213> Strongylocentrotus purpuratus

<400> 66  
Asp Lys Val Leu Asp Arg Asp Gly Ala Leu Ser Val Leu Asp Asp Arg  
1 5 10 15  
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn Ala Gly  
20 25 30  
Lys Leu Lys Arg Lys Tyr Trp Trp  
35 40

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<210> 67  
<211> 40  
<212> PRT  
<213> *Aplysia* sp.

<400> 67  
Glu Lys Val Leu Asp Arg Asp Gln Lys Ile Ser Gln Leu Asp Asp Arg  
1 5 10 15  
Ala Glu Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly  
20 25 30  
Lys Leu Lys Arg Lys Tyr Trp Trp  
35 40

<210> 68  
<211> 40  
<212> PRT  
<213> *Teuthoida* sp.

<400> 68  
Asp Lys Val Leu Glu Arg Asp Ser Lys Ile Ser Glu Leu Asp Asp Arg  
1 5 10 15  
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly  
20 25 30  
Lys Leu Lys Arg Lys Phe Trp Trp  
35 40

<210> 69  
<211> 40  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 69  
Asn Lys Val Met Glu Arg Asp Val Gln Leu Asn Ser Leu Asp His Arg  
1 5 10 15  
Ala Glu Val Leu Gln Asn Gly Ala Ser Gln Phe Gln Gln Ser Ser Arg  
20 25 30  
Glu Leu Lys Arg Gln Tyr Trp Trp  
35 40

<210> 70  
<211> 40  
<212> PRT  
<213> *Drosophila* sp.

<400> 70  
Glu Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Gly Glu Arg  
1 5 10 15  
Ala Asp Gln Leu Glu Gly Gly Ala Ser Gln Ser Glu Gln Gln Ala Gly  
20 25 30  
Lys Leu Lys Arg Lys Gln Trp Trp

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35

40

<210> 71  
<211> 40  
<212> PRT  
<213> Drosophila sp.

<400> 71  
Glu Lys Val Leu Glu Arg Asp Ser Lys Leu Ser Glu Leu Asp Asp Arg  
1 5 10 15  
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Gln Gln Ala Gly  
20 25 30  
Lys Leu Lys Arg Lys Phe Trp Leu  
35 40

<210> 72  
<211> 39  
<212> PRT  
<213> Hirudinida sp.

<400> 72  
Asp Lys Val Leu Glu Lys Asp Gln Lys Leu Ala Glu Leu Asp Arg Ala  
1 5 10 15  
Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly Lys  
20 25 30  
Leu Lys Arg Lys Phe Trp Trp  
35

<210> 73  
<211> 18  
<212> PRT  
<213> Homo sapiens

<400> 73  
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys  
1 5 10 15  
Ala Arg

<210> 74  
<211> 18  
<212> PRT  
<213> Bos taurus

<400> 74  
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys  
1 5 10 15  
Ala Arg

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<210> 75  
<211> 18  
<212> PRT  
<213> Rattus sp.

<400> 75  
Glu His Ala Lys Glu Glu Thr Lys Lys Ala Ile Lys Tyr Gln Ser Lys  
1 5 10 15  
Ala Arg

<210> 76  
<211> 18  
<212> PRT  
<213> Rattus sp.

<400> 76  
Glu Lys Ala Arg Asp Glu Thr Arg Lys Ala Met Lys Tyr Gln Gly Gly  
1 5 10 15  
Ala Arg

<210> 77  
<211> 18  
<212> PRT  
<213> Rattus sp.

<400> 77  
Glu Arg Gly Gln Glu His Val Lys Ile Ala Leu Glu Asn Gln Lys Lys  
1 5 10 15  
Ala Arg

<210> 78  
<211> 18  
<212> PRT  
<213> Gallus gallus

<400> 78  
Val Pro Glu Val Phe Val Thr Lys Ser Ala Val Met Tyr Gln Cys Lys  
1 5 10 15  
Ser Arg

<210> 79  
<211> 18  
<212> PRT

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<213> Strongylocentrotus purpuratus

<400> 79

Val	Arg	Arg	Gln	Asn	Asp	Thr	Lys	Lys	Ala	Val	Lys	Tyr	Gln	Ser	Lys
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Ala Arg

<210> 80

<211> 18

<212> PRT

<213> Aplysia sp.

<400> 80

Glu	Thr	Ala	Lys	Met	Asp	Thr	Lys	Lys	Ala	Val	Lys	Tyr	Gln	Ser	Lys
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Ala Arg

<210> 81

<211> 18

<212> PRT

<213> Teuthoida sp.

<400> 81

Glu	Thr	Ala	Lys	Val	Asp	Thr	Lys	Lys	Ala	Val	Lys	Tyr	Gln	Ser	Lys
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Ala Arg

<210> 82

<211> 18

<212> PRT

<213> Drosophila sp.

<400> 82

Gln	Thr	Ala	Thr	Gln	Asp	Thr	Lys	Lys	Ala	Leu	Lys	Tyr	Gln	Ser	Lys
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Ala Arg

<210> 83

<211> 18

<212> PRT

<213> Hirudinida sp.

<400> 83

Glu	Thr	Ala	Ala	Ala	Asp	Thr	Lys	Lys	Ala	Met	Lys	Tyr	Gln	Ser	Ala
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090404-082801

Ala Arg

<210> 84  
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<212> PRT  
<213> Artificial Sequence

<220>  
<223> synthetic construct

<400> 84  
Gly Gly Gly Gly Ser  
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<210> 85  
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<221> MOD\_RES  
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<221> AMIDATION  
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Met Leu Xaa

<210> 86  
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<220>  
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<221> MOD\_RES

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<223> Xaa=fluorescein-modified lysine

Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln  
1 5 10

<213> Artificial Sequence

<223> synthetic construct

<223> Xaa=tetramethylrhodamine-modified lysine

<223> at the C-terminal

Arg Ala Thr Lys Met Leu Xaa  
1 5

<213> Artificial Sequence

<223> synthetic peptide

<223> Xaa=fluorescein-modified lysine

<223> Xaa=tetramethylrhodamine-modified lysine

<223> at the C-terminal

Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr  
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 Lys Met Leu Gly Ser Gly Xaa

20

<210> 89  
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<221> MOD\_RES  
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<221> AMIDATION  
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Thr Lys Met Leu Xaa  
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<210> 90  
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<221> AMIDATION  
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1 5 10 15

T08280-1202h660



Thr Lys Met Leu Gly Ser Gly Xaa  
20

<210> 91  
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<400> 91  
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<210> 92  
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<221> AMIDATION  
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Ser Gly Xaa

TOB230"42024560

<210> 93  
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<221> MOD\_RES  
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<221> AMIDATION  
 <222> (0)...(0)  
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<400> 93  
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   1                  5                  10                  15  
 Met Leu Gly Ser Gly Xaa  
                   20

<210> 94  
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<221> AMIDATION  
 <222> (0)...(0)  
 <223> at the C-terminal

<400> 94  
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108280-4224650

1 5 10 15

<210> 95  
<211> 19  
<212> PRT  
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<220>  
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<221> MOD\_RES  
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<221> MOD\_RES  
<222> 19  
<223> Xaa=EDANS modified lysine

<221> AMIDATION  
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<400> 95  
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1 5 10 15  
Ser Gly Xaa

<210> 96  
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Pro Gly Gly Gly Pro Pro Gly Pro Pro Pro Asn Met Thr Ser Asn Arg  
20 25 30  
Arg Leu Gln Gln Thr Gln Ala Gln Val Glu Glu Val Val Asp Ile Ile  
35 40 45  
Arg Val Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu  
50 55 60  
Leu Asp Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu  
65 70 75 80  
Ser Ser Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys  
85 90 95  
Met Met Ile Met Leu Gly Ala Ile Cys Ala Ile Ile Val Val Val Ile  
100 105 110  
Val Ile Tyr Phe Phe Thr  
115

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